U11A-45: Hourly RINEX GPS Data Service Is Enabled by a Lightweight, Configurable Data Handling System

A. W. MOORE, D. A. STOWERS,
R. KHACHIKYAN, M. R. MARCIN,
I. L. HARRIS, AND J. F. ZUMBERGE

Jet Propulsion Laboratory,
California Institute of Technology

The research described in this poster was carried out by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

JPL Global GPS Network

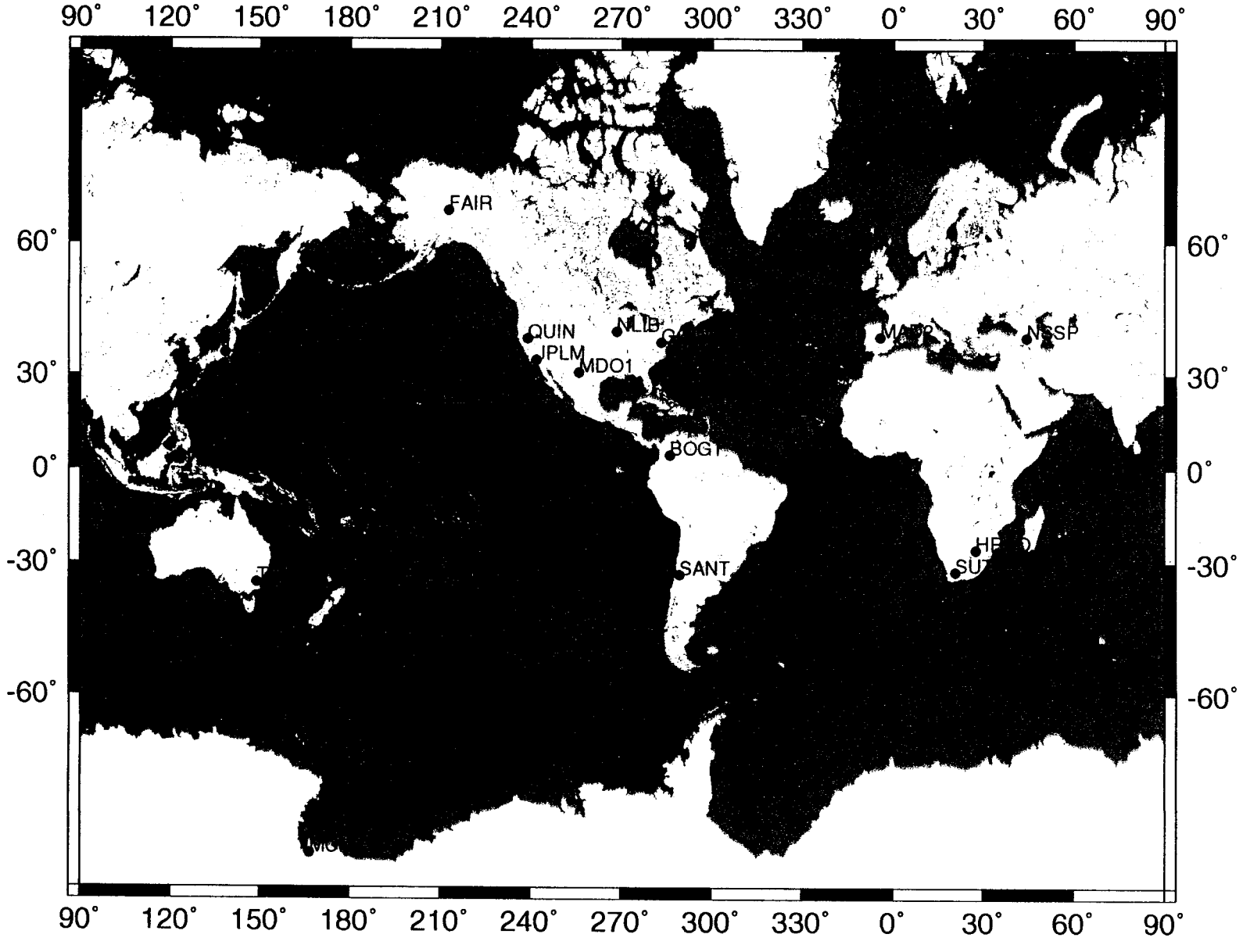
JPL currently operates more than 55 permanent, continuously operating GPS ground stations for NASA, many in conjunction with international and regional agencies. The data are automatically uploaded from the remote stations, processed, and distributed, with a high degree of reliability.

JPL Global GPS Network

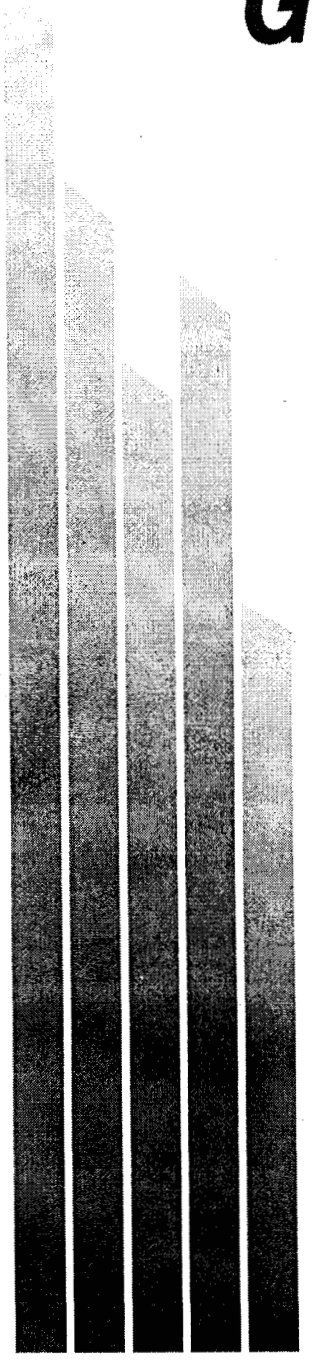
Historically, data collection has been on a daily basis; however, some sites (detailed below) now provide data to JPL hourly.

~30 global NASA/JPL sites consitute the hourly subnetwork, with approximately 90% typical on-time performance. Data is distributed to users via the Crustal Dynamics Data Information System (CDDIS).

JPL Hourly RINEX Subnetwork

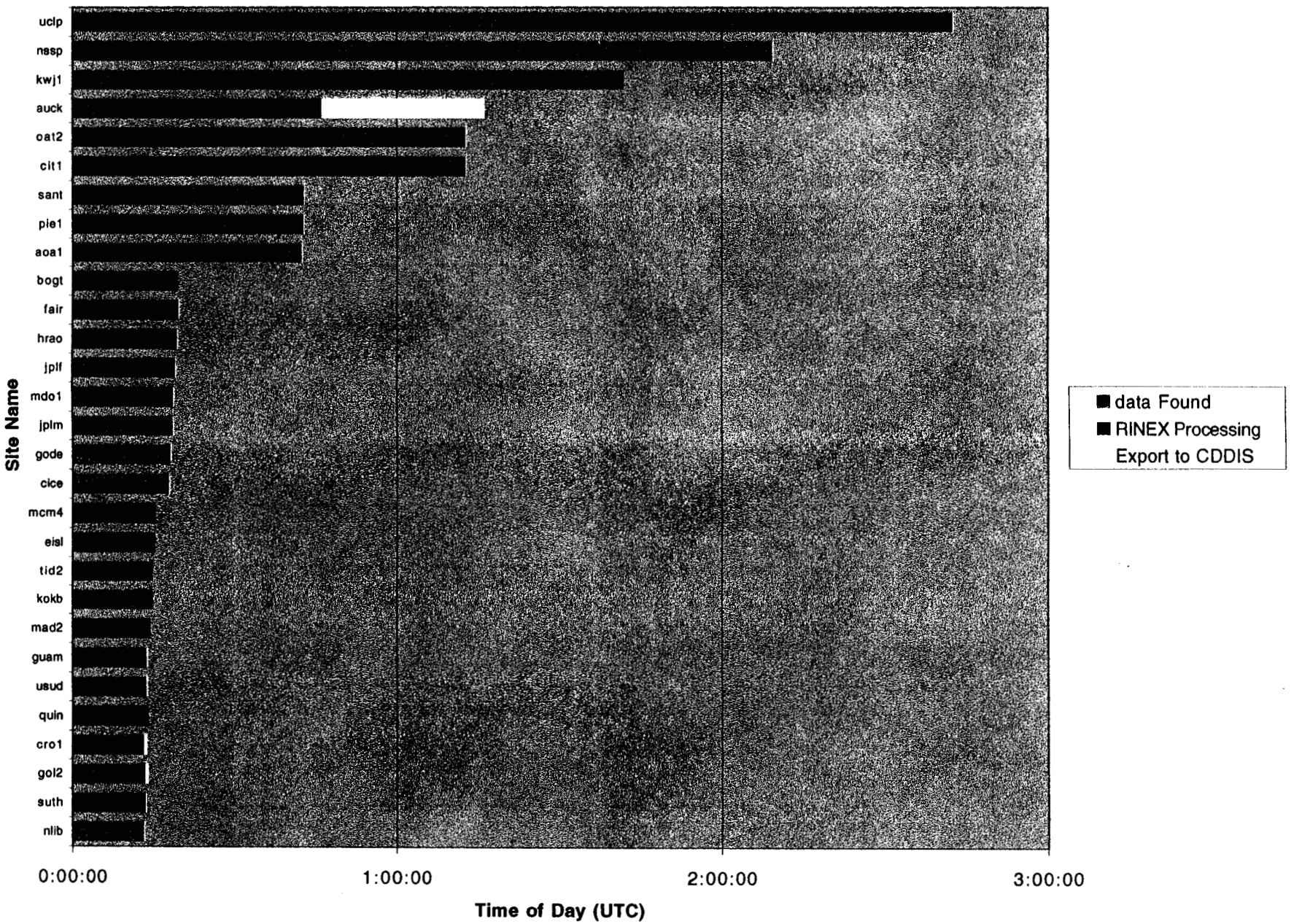


GNRT Quick Data Processing

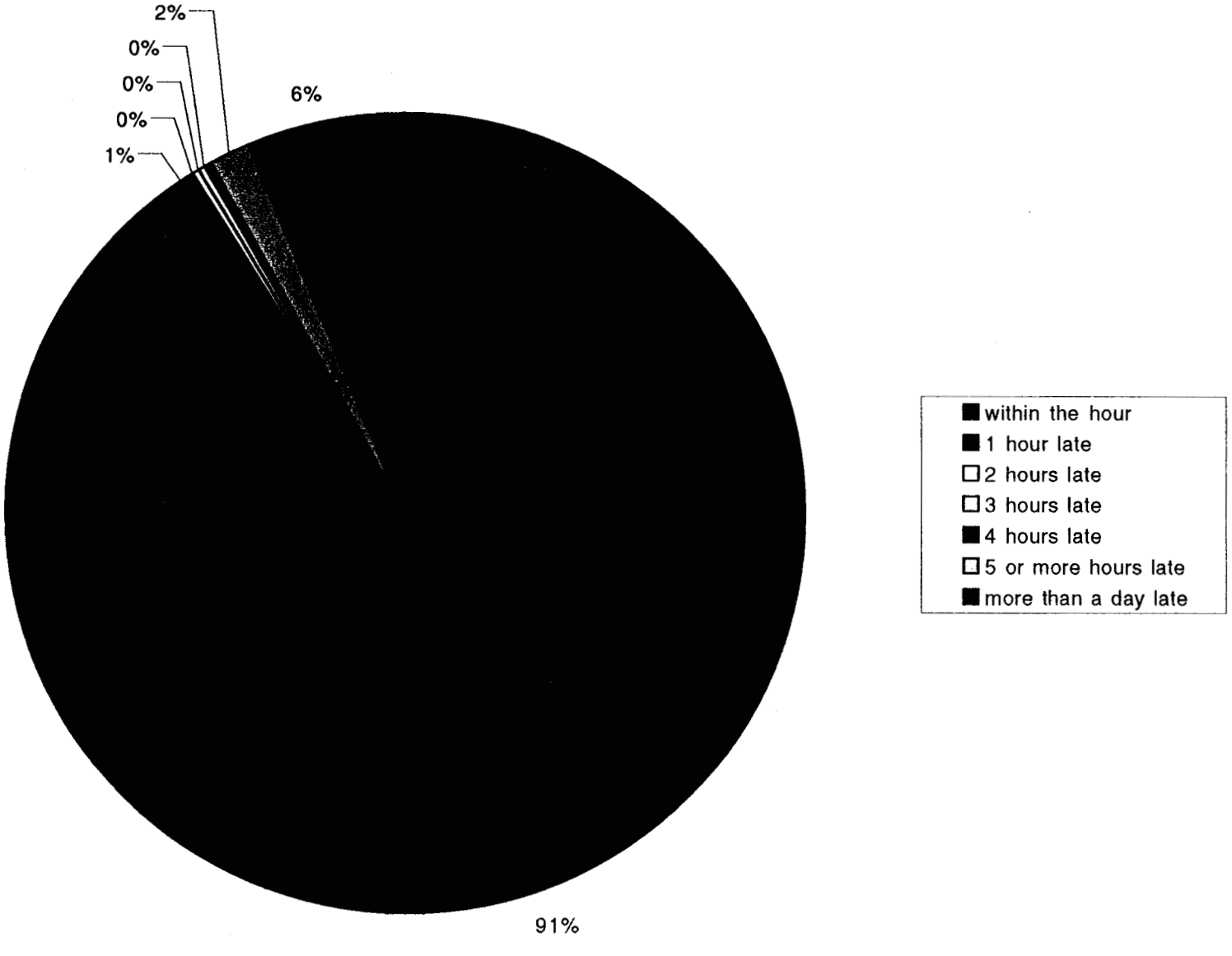


- *Generalized Near Real Time* (GNRT) system written in Perl under unix is configurable to handle any type of processing
- Operationally handles data uploaded hourly from Near Real Time global subnetwork, promptly generating and exporting daily and hourly RINEX files
- Data-driven system initiates processing within seconds of import
- Total system under 1000 lines of code

Hourly RINEX production d336, y1998



Hourly GPS Data Processing d262-268, y1998



Hourly GPS data applications

- Ionospheric processing ongoing at JPL since 08/1996
- Ground support to low-earth orbiter missions such as CHAMP, GRACE, etc. expected early 1999
- Hourly global orbit and clock calculation prototype under test at JPL's Analysis Center

For Further Information, Contact:

- David Stowers, dstowers@jpl.nasa.gov for hourly data processing questions
- Carey Noll, noll@cddis.gsfc.nasa.gov for data availability questions